Listing of Claims:

1. (Currently Amended) A single sideband (SSB) mixer, comprising:

~~a first mixer and a second mixer, wherein the first and second mixers multiply an input IF (intermediate frequency) signal by a local IF signal having the same frequency of the input IF signal;~~

a first mixing portion which receives a first input signal and a second input signal, multiplies each of the first and second input signals by a local IF (intermediate frequency) signal, and outputs a first output signal and a second output signal;

a band-pass filter which passes upper sideband signal of the first output signal ~~output from the first mixer~~;

a second mixing portion which receives the band-passed signal and the second output signal, multiplies each of the band-passed signal and the second output signal by an LO (local oscillating) signal, and outputs a third signal and a fourth signal; and

an operating portion which performs a predetermined operation on the third and fourth signals to output a signal having the same frequency as the LO signal.

~~a third mixer which multiplies the upper sideband signals output from the band-pass filter by a LO (local oscillating) signal;~~

~~a fourth mixer which multiplies the signals output from the second mixer by the LO signal; and~~

~~a subtraction device that subtracts output signals of the third mixer from output signals of the fourth mixer.~~

2. (Currently Amended) The SSB mixer of claim 19, further comprising a variable gain amplifier, operatively connected between the second and fourth mixers, for adjusting the gain and phase of signals output from the second mixer.

3. (Currently Amended) The SSB mixer of claim 19, further comprising means for generating the local IF signal and the LO signal.

4. (Currently Amended) The SSB mixer of claim 19, wherein the operating portion is a subtraction device ~~output of the subtraction device comprises a signal having the same frequency as the LO signal~~.

5. (Canceled)

6. (Currently Amended) The SSB mixer of claim ~~5~~ 20, further comprising a variable gain amplifier, operatively connected between the second and fourth mixers, for adjusting the gain and phase of the signals output from the second mixer.

7. (Currently Amended) The SSB mixer of claim ~~5~~ 20, further comprising means for generating the local IF signal and the LO signal.

8. (Currently Amended) The SSB mixer of claim ~~5~~ 20, wherein the operating portion is an adding device ~~output of the adding device comprises a signal having the same frequency as the LO signal~~.

9. (Original) A SSB (single sideband) mixer, comprising:

a first mixer which multiplies an input IF (intermediate frequency) signal by a local IF signal having the same frequency as the input IF signal;

a low pass filter which passes a base band signal output from the first mixer; and

a second mixer which multiplies the base band signal by a LO (local oscillating) signal.

10. (Original) The SSB mixer of claim 9, further comprising means for generating the local IF signal and the LO signal.

11. (Original) The SSB mixer of claim 9, wherein the second mixer outputs a signal having the same frequency as the LO signal.

12. (Currently Amended) A method of extracting a single sideband (SSB) signal, comprising ~~the steps of~~:

~~(a) multiplying an input IF (intermediate frequency) signal by a local IF signal having the same frequency of the input IF signal to generate an upper sideband and lower sideband of frequencies, the upper sideband comprising a signal equal in frequency to the sum of the frequencies of the input IF signal and the local IF signal, and the lower side band comprising a signal equal in frequency to the difference between the frequencies of the input IF signal and the local IF signal;~~

~~(b) multiplying said upper sideband by a LO (local oscillating) signal to generate first output signals;~~

~~(c) multiplying said lower sideband by the LO signal to generate second output signals; and~~

~~(d) subtracting the first output signals from the second output signals to obtain a single frequency signal.~~

multiplying a first input signal and a second input signal by a local IF (intermediate frequency) signal to output a first output signal and a second output signal;

band-pass filtering an upper sideband signal of the first output signal;

multiplying the upper sideband signal and the second output signal by an LO (local oscillating) signal to output a third signal and a fourth signal; and

processing the third and fourth signals to output a signal having the same frequency as the LO signal.

13. ~ 16. (Canceled)

17. (Original) A method of extracting a single sideband (SSB) signal, comprising the steps of:

(a) multiplying an input IF (intermediate frequency signal) signal by a local IF signal having the same frequency as the input IF signal to generate a plurality of signals;

(b) extracting a base-band signal from the plurality of signals generated in step (a); and

(c) multiplying the base-band signal by a LO (local oscillating) signal and outputting a single frequency signal.

18. (Original) The method of claim 17, wherein the single frequency signal obtained in step (c) comprises the LO signal frequency.

19. (New) The SSB mixer of claim 1, wherein the first mixing portion comprises a first mixer and a second mixer whose input signals are an input IF signal having the same frequency as the local IF signal and wherein the second mixing portion comprises a third mixer and a fourth mixer whose input signals are the band-passed signal and the second output signal, respectively.

20. (New) The SSB mixer of claim 1, where the first mixing portion comprises a first mixer and a second mixer whose input signals are an input IF signal and an input IF signal but opposite in phase and wherein the second mixing portion comprises a third mixer and a fourth mixer whose input signals are the band-passed signal and the second output signal, respectively.

21. (New) The method of claim 12, wherein the first and second input signals are an IF signal having the same frequency as the local IF signal.

22. (New) The method of claim 12, wherein the first input signal is an IF signal having the same frequency as the local IF signal and the second input signal is an IF signal having the same frequency as the local IF signal but opposite in phase.